

REMARKS

The claims remaining in the application are 1-2 and 4-46. Claims 3 and 47-62 are canceled herein without prejudice to the Applicant's right to submit them later in a continuing application. Claims 1, 18 and 24 are amended.

The Applicant would like to thank the Examiner for the quick and courteous Office Action; the Applicant is particularly appreciative of the allowance of claims 37-46, and the withdrawal of the Harms reference.

Rejection Under 35 U.S.C. §112, Second Paragraph

The Examiner rejected claims 24-26 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner finds that claim 24 teaches that the polyol is alkyl glucoside, but teaches an amount of sorbitol. The scope of the claim is thus not clear.

The Applicant appreciates the Examiner pointing out this inadvertent error, and respectfully directs the Examiner's attention to the amendment to claim 24 herein where the other inadvertent use of "sorbitol" in line 2 of the claim has been corrected to read "alkyl glucoside", as in the first and fourth lines of the claim. The Applicant regrets any confusion and inconvenience this additional inadvertent error may have caused.

Reconsideration is respectfully requested.

35 U.S.C. §102(b) Rejection Over Card, et al.

The Examiner rejected claims 1-23 and 27-36 under 35 U.S.C. §102(b) as being allegedly anticipated by U.S. Pat. No. 5,877,127 to Card, et al.

The Examiner finds that Card, et al. teaches a method of fracturing a subterranean formation in which an aqueous fluid gelled with a polysaccharide, and containing a polyol within the scope of the present invention is used. As in the present invention, the Examiner finds that heat and pH control agents are used. The Examiner contends that the Applicant's discovery of the inherent property of the polyol acting as a breaker does not distinguish over the prior art, citing *In re Tomlinson*.

The Examiner noted that the Applicant's previous arguments were considered, but were not deemed fully persuasive. The Examiner asserts that with respect to Card, et al. most of the Applicant's arguments were done in regard to obviousness, whereas in the instant case an anticipation rejection was made. The Examiner contends that since Card, et al. places the composition, comprising the same polyol in the formation, under the same conditions, it is not seen absent a showing by Applicant how such could produce a different result. Again, the Examiner alleges that Applicant's discovery of an allegedly inherent property of the polyol acting as a breaker does not distinguish over the prior art.

The Applicant respectfully traverses.

A patent claim is anticipated, and therefore invalid, only when a single prior art reference discloses each and every limitation of the claim. *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1047, 34 U.S.P.Q.2d 1565 (Fed. Cir.), cert. denied, 116 S.Ct. 516 (1995).

Applicant respectfully submits that the single Card, et al. reference does not disclose each and every limitation of the instant *method* claims, namely, Card, et al. does not disclose that polyols break the viscosity of aqueous fluids gelled with polysaccharides. Card, et al. only discloses that certain polyols provide delay time and stabilize the fracturing fluid – a *different method* from that claimed herein. For this reason alone it is respectfully submitted that the instant rejection should be withdrawn.

Card, et al. is directed to a method for

... controlling the delay time of aqueous borate-crosslinked polysaccharide-based fluids for hydraulic fracturing and related applications which allows on-the-fly control of the delay time without comprising overall fluid integrity. Without having to modify the total boron content nor pH of the fracturing fluid, the delay time is controlled by adding a polyol to the fracturing fluid at a first rate, determining the resulting delay time and then adjusting the rate of the polyol addition to the fracturing fluid until the desired delay time is achieved. (Abstract)

The only added degradation agents used and taught by Card, et al. are either enzymes or oxidizing agents; the Examiner's attention is respectfully directed to column 11, line 66 to column 12, line 24 therein (please note that sodium bromate is an oxidizer), particularly column 11, line 66 to column 12, line 2:

A degradation agent is optionally employed to predictably degrade the set gel, i.e., borate-crosslinked polysaccharide, after a predetermined period of time. The degradation agents are generally either enzymes or oxidizing agents. (Emphasis added.)

Thus, one having ordinary skill in the art reading Card, et al. for teachings about methods of breaking the viscosity of aqueous fluids gelled with polysaccharides (the technical problem and focus of the instant claims) would only know that an enzyme or an oxidizing agent was required.

However, the Examiner's attention is respectfully directed to the amendment to claim 1 herein where the claim now recites "where the concentration of the polyol is effective to break down the polymer backbone directly in the absence of an oxidizer breaker or an enzyme breaker". Support for the added portion was found in the application as originally filed in dependent claim 3 (now canceled as redundant) and elsewhere and thus does not constitute an improper insertion of new matter. Card, et al. does not teach or disclose *methods* for predictably degrading the set gel after a predetermined set time, which is what is desired in the intentional breaking of aqueous fluids gelled with polysaccharides, without using oxidizer breakers or enzyme breakers. Employing an oxidizer agent or an enzyme agent to degrade the gel are the only methods disclosed by Card, et al. Thus, for this reason alone, the single prior art reference does not disclose each and every limitation of the claims, as amended herein.

Because independent claims 27 and 32 and the claims dependent thereon already contain this language "in the absence of an oxidizer breaker or an enzyme breaker", it is respectfully submitted that these claims also contain limitations that are not disclosed by the single prior art reference. Thus, the Applicant respectfully submits that claims 1-23 and 27-36 are novel over Card, et al. because the single prior art reference does not disclose each and every limitation of the claims as amended.

Further, Card, et al. teaches that only certain polyols are suitable to provide delay time and stabilize the fracturing fluid, as noted in column 11, lines 44-57:

Suitable polyols are those that provide *adequate delay time and stabilize* the fracturing fluid at the end use conditions of the fracturing process. Suitable polyols are preferably those that have an equilibrium constant ($K_{eq} = k_2$ at 25°C.) of at least 10^3 , preferably at least 10^4 . Examples of such suitable polyols include fructose, sorbitol, gluconic acid and salts thereof, e.g., sodium glu-

conate, glucoheptonic acid and salts thereof, e.g., sodium glucoheptonate, mannitol, ribose, arabinose, and xylose. *Polyols which have been demonstrated not to be suitable in the method of the present invention include glucose, ethylene glycol, glycerol, mannose, and rhamnose.* Each of these materials have a K_{eq} less than 10^3 . One polyol which is not as preferable is *galactose*. (Emphasis added.)

Card, et al. explicitly and directly discloses and teaches a number of polyols to not be suitable in their method of providing delay time and stabilizing the fracturing fluid, namely: **glucose, ethylene glycol, glycerol, mannose, rhamnose and galactose**. Card, et al. does not teach or suggest or disclose what the effect of these polyols are, and is silent about any effect, other than that they are *not* suitable for the Card, et al. method.

Consequently, the Applicant's claims directed to these polyols are novel over Card, et al. because Card, et al. does not disclose each and every limitation of the claims. More specifically, claims 15-17 and 32-36 recite that glucose is the low molecular weight polyol. Card, et al. does not disclose that glucose is suitable for anything; the reference explicitly discloses that glucose is not suitable for the method of Card, et al. and there is no teaching in Card, et al. that glucose is suitable in a method for breaking the viscosity of aqueous fluids gelled with polysaccharides as claimed herein.

Further, claim 18 and claims dependent thereon have been amended to recite that the polyol is selected from the group consisting of mannose, galactose and mixtures thereof. Card, et al. does not disclose that mannose and/or galactose are suitable for anything; the reference explicitly teaches that mannose and/or galactose are not suitable for the method of Card, et al. and there is no teaching in Card, et al. that mannose and/or galactose are suitable in a method for breaking the viscosity of aqueous fluids gelled with polysaccharides as claimed herein.

Again, Card, et al. does not disclose, know, recognize, understand, claim or teach that some of these polyols can be used to break the polysaccharide "polymer chain" or backbone directly in the aqueous fluids gelled with the polysaccharides. Card, et al. only teaches that some few of the polyols *stabilize* the fracturing fluid – a different method than claimed.

Indeed, the only agents Card, et al. teaches as breaking agents or degradation agents are enzymes or oxidizing agents. The Examiner's attention is respectfully directed to column 11, line 66 to column 12, line 2 of Card, et al.:

A degradation agent is optionally employed to predictably degrade the set gel, i.e., borate-crosslinked polysaccharide, after a predetermined period of time. *The degradation agents are generally either enzymes or oxidizing agents.* (Emphasis added.)

There is no teaching, disclosure, suggestion or hint from Card, et al. that polyols might serve as degradation agents.

It is respectfully submitted that for all of these reasons the instant rejection is overcome and should be withdrawn. Reconsideration is respectfully requested.

Request for Entry of Amendment

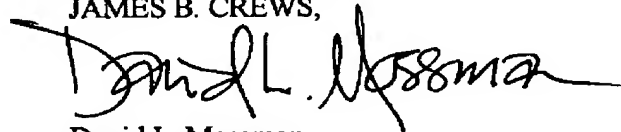
The Applicants would respectfully submit that the instant Amendment be entered under 37 CFR §1.116(b): "Amendments presenting rejected claims in better form for consideration on appeal may be admitted." It is respectfully noted that claims have been canceled herein. Specifically, claim 3 has been canceled and its language incorporated into independent claim 1 thus narrowing the issues. Non-elected and withdrawn composition claims 47-62 have been cancelled without prejudice to the Applicant's right to submit them later in a continuing application, thus further narrowing the issues. It is respectfully submitted that for all of these reasons alone, which simplify and narrow the issues, the instant Amendment should be entered.

Further, the Applicants would respectfully submit that the instant amendment be entered under 37 CFR §1.116(c): "If amendments touching the merits of the application or patent under reexamination are presented after final rejection, or after appeal has been taken, or when such amendment might not otherwise be proper, they may be admitted upon showing of good and sufficient reasons why they are necessary and were not earlier presented." The Applicants submit that the reason why the amendments and arguments above are necessary and were not earlier presented is because it is unclear why method claims 37-46 have been allowed and claims 27-36 which contained similar language were not allowed. Further, claim 1 and claims dependent thereon have now been amended to include such language, namely "where the method is conducted in the absence of an oxidizer breaker or an enzyme breaker" which should permit them to be allowed as established above. The importance of this language was not evident until the

final Office Action. For the Applicant to have any hope of being assured of a chance to fully address the instant rejections, the amendments and arguments herein must be entered and considered.

It is respectfully submitted that the arguments and amendments presented above overcome the rejections and place the claims in condition for allowance. Reconsideration and allowance of the claims are respectfully requested. The Examiner is respectfully reminded of his duty to indicate allowable subject matter. The Examiner is also invited to call the Applicant's attorney at the number below for any reason, especially any reason that may help advance the prosecution.

Respectfully submitted,
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